



# **TOWN OF DEDHAM**

## **CONTRIBUTORY RETIREMENT SYSTEM**

Actuarial Valuation Report  
January 1, 2008

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## Report Summary:

<u>Highlights</u>	<u>January 1, 2006</u>	<u>January 1, 2008</u>
<u>Contributions</u>		
Funding Schedule FY 2009	\$3,433,449	\$3,433,449
Funding Schedule FY 2010	3,461,766	3,457,781
<u>Funded Ratios</u>		
GAS No. 25	78.7%	92.0%
<u>Participants</u>		
Actives	419	432
Retirees and Beneficiaries	247	238
Inactives	106	123
Disabled	<u>53</u>	<u>51</u>
Total	825	844
<u>Payroll</u>		
Payroll of Active Members	\$17,182,174	\$18,680,825
Average Payroll	41,008	43,243
<u>Normal Cost</u>		
Employer	997,737	988,435
Employee	1,351,822	1,507,688
Administrative Expenses	<u>100,000</u>	<u>125,000</u>
Total	2,449,559	2,621,123
<u>Actuarial Accrued Liabilities</u>		
Actives	41,485,797	47,111,703
Retirees, Beneficiaries, Disabilities and Inactives	<u>47,203,819</u>	<u>51,479,945</u>
Total	89,323,471	98,591,648
<u>Actuarial Value of Assets</u>	<u>70,287,535</u>	<u>90,708,716</u>
<u>Unfunded Actuarial Accrued Liabilities</u>	\$19,035,936	\$7,882,932



## **Introduction**

This report presents findings as of January 1, 2008 of an actuarial valuation of the Dedham Contributory Retirement System.

The actuarial valuation is based on:

- Provisions Chapter 32 of the Massachusetts General Laws, "M.G.L", as of January 1, 2008.
- Employee data provided by the Retirement Board
- Asset information reported to the Public Employee Retirement Administration Commission by the Town of Dedham Contributory Retirement System
- Actuarial assumptions approved by the Retirement Board

The valuation and appropriation forecast are prepared in accordance with Chapter 32 of the M.G.L. as of January 1, 2008.

The valuation and forecast do not account for:

- Any subsequent changes in the law
- Chapter 32 of the M.G.L., Section 3(8)(c) transfers between systems
- State-mandated benefits
- Cost-of-living increases granted to retired members between 1982 and 1997. The cost of these benefits has been assumed by the State under Proposition Two and One-Half.



### **Actuarial Experience**

In performing the actuarial valuation, various assumptions are made regarding such factors as mortality, retirement, disability, and withdrawal rates as well as both payroll, salary increases, and investment returns. A comparison of the current valuation and the prior valuation is made to determine how closely actual experience corresponded to anticipated occurrences. This analysis of the system provides insight into the overall quality of the actuarial assumptions and helps explain any change in the annual appropriation.

During the last two years, the total unfunded actuarial accrued liability decreased by 58.6% to \$7,882,932. The decrease is the result of net favorable actuarial experience during the preceding years. The primary component of the favorable experience was an investment return more than the 8.0% assumption. The actuarial value of assets had returns of 16.15% and 13.58% for 2006 and 2007, respectively. The sources of the (gain)/loss are as follows:

Investment	(10,210,446)
Salary Increases	(777,920)
New Participants	264,018
Continuing Actives	(741,207)
Active - Retirements	1,164,504
Active - Terminations	35,447
Active - Mortality	81,103
Active - Disabilities	189,706
Inactive - Mortality and data adjustments	831,496
Other, including data changes, interest on EE deductions	(468,764)
Total (Gain)/Loss	(9,362,063)



## Actuarial Costs and Liabilities:

### Normal Costs

The normal cost is the sum of the individual normal costs determined for each member as if the assumptions underlying the cost determinations had been exactly realized. An individual normal cost represents that part of the cost of a member's future benefits which are assigned to the current year as if the costs are to remain level as a percentage of the member's pay. Benefits payable under all circumstances (i.e., retirement, death, disability, and terminations) are included in this calculation. Anticipated employee contributions to be made during the year are subtracted from the total normal cost to determine employer normal cost. The total normal cost is divided by total payroll to determine the normal cost as a percent of pay. The normal cost is shown in Table I.

**Table I**

	<u>January 1, 2006</u>	<u>January 1, 2008</u>
Superannuation	\$1,583,284	\$1,676,882
Termination	206,964	224,409
Death	123,043	134,789
Disability	436,268	460,043
Administrative Expenses	<u>100,000</u>	<u>125,000</u>
Total Normal Cost	2,449,559	2,621,123
% of Pay	14.3%	14.0%
Employee Contributions	1,351,822	1,507,688
% of Pay	7.9%	8.1%
Employer Normal Cost	\$1,097,737	\$1,113,435
% of Pay	6.4%	6.0%



**Present Value of Actuarial Accrued Liabilities**

The actuarial accrued liabilities (AAL) represents today's value of all benefits based on the past service of the actives and inactive. The AAL can be compared to the assets to determine the funded status of the Plan. The value of these earned benefits is shown in Table II below.

**Table II**

	<u>January 1, 2006</u>	<u>January 1, 2008</u>
Actives		
Superannuations	\$36,125,441	\$41,200,362
Termination	759,861	881,194
Death	1,391,104	1,551,679
Disability	3,209,391	3,478,468
Retirees and Inactives		
Retirees and Beneficiaries	35,451,407	38,536,271
Terminated (Refund)	633,855	420,813
Disabled	<u>11,752,412</u>	<u>12,522,861</u>
Total	\$89,323,471	\$98,591,648



**Present Value of Future Benefits**

The present value of future benefits represents today's value of all benefits earned by the inactive participants as well as all benefits earned and expected to be earned in the coming years by the active participants. The difference between the present value of future benefits and the present value of actuarial accrued liabilities is the value of benefits to be earned in the coming years. The value of the total expected benefits is shown in Table III.

**Table III**

	<u>January 1, 2006</u>	<u>January 1, 2008</u>
Actives		
Superannuation	\$51,172,137	\$56,568,424
Termination	1,623,175	1,823,480
Death	2,528,443	2,749,737
Disability	7,863,082	8,290,579
Retirees and Inactives		
Retirees and Beneficiaries	35,451,407	38,536,271
Terminated (Refund)	633,855	420,813
Disabled	<u>11,752,412</u>	<u>12,522,861</u>
Total	\$111,024,511	\$120,912,165



## Funded Status and Appropriations:

### Market Value of Plan Assets

The trust fund composition on a market value basis is shown in Table IV.

**Table IV**

	<u>January 1, 2006</u>	<u>January 1, 2008</u>
Cash equivalents	\$117,856	\$268,558
Short term investments	0	0
Fixed income securities	0	0
Equities	0	0
International	0	0
Real Estate	0	0
Venture Capital	0	0
PRIT	76,107,135	96,523,295
Accounts receivable	5,177	6,320
Accounts payable	(302)	0
Accrued income	<u>0</u>	<u>0</u>
Total Market Value	\$76,229,866	\$96,798,173
Total Actuarial Value	\$70,287,535	\$90,708,716



**Actuarial Value of Assets**

The actuarial value of assets is determined by projecting the market value of assets as of the beginning of the prior plan year with the assumed rate of return during that year (8.0%) and accounting for deposits and disbursements with interest at the assumed rate of return. An adjustment is then applied to recognize the difference between the actual investment return and expected return over a four year period. This preliminary actuarial value is not allowed to differ from the market value of assets by more than 10%. The calculation of the actuarial value of assets as of January 1, 2008 is presented in Table V.

**Table V**

	<u>January 1, 2008</u>
(1) Market value at January 1, 2007	\$87,515,634
(2) 2007 Contributions	\$5,457,104
(3) 2007 Payments	(\$6,185,663)
(4) Net interest adjustment at 8.0% on (1), (2), and (3) to December 31, 2007	\$6,972,108
(5) Expected market value on January 1, 2008	\$93,759,183
(1) + (2) + (3) + (4)	
(6) Actual market value on January 1, 2008	\$96,798,173
(7) 2007 (Gain) / Loss	(\$3,038,990)
(8) 75% of 2007 (Gain) / Loss	(\$2,279,242)
(9) 2006 (Gain) / Loss	(\$6,238,092)
(10) 50% of 2006 (Gain) / Loss	(\$3,119,046)
(11) 2005 (Gain) / Loss	(\$2,764,676)
(12) 25% of 2005 (Gain) / Loss	(\$691,169)
Actuarial value on January 1, 2008, (6) + (8) + (10) + (12)	
(13) but not less than 90% nor greater than 110% of (6)	\$90,708,716
(14) Ratio of actuarial value to market value	93.71%
(15) Actuarial Value Return for 2006	16.15%
(16) Actuarial Value Return for 2007	13.58%
(17) Market Value Return for 2006	16.24%
(18) Market Value Return for 2007	11.49%



**Unfunded Actuarial Accrued Liabilities**

Under the Entry Age Normal Actuarial Cost Method, the Actuarial Accrued Liability represents what the accumulated assets would have been as of the valuation date if:

- current plan provisions and assumptions had always been in effect,
- experience conformed exactly to assumptions, and
- the normal cost had been contributed each year since inception.

The actuarial value of the Fund's assets as of the end of the prior year are subtracted from the Actuarial Accrued Liability (AAL) to determine the Unfunded Actuarial Accrued Liability (UAAL) as of the valuation date. Over time, annual pension contributions will accumulate Plan assets equal to the AAL, and the UAAL will be eliminated. Thereafter, annual contributions equal to the normal cost will keep the Plan's assets and liabilities in balance. The UAAL is developed in Table VI.

**Table VI**

	<u>January 1, 2006</u>	<u>January 1, 2008</u>
Actuarial Accrued Liability	\$89,323,471	\$98,591,648
Actuarial Assets	<u>70,287,535</u>	<u>90,708,716</u>
Unfunded Actuarial Accrued Liability	\$19,035,936	\$7,882,932
Funded Status	78.7%	92.0%



## **Appropriations**

The pension appropriation for the upcoming fiscal years have been calculated in accordance with the requirements set forth in Section 22D of Chapter 32 of the Massachusetts General Laws. These amounts were calculated to comply with the June 30, 2028, full funding mandate for all accrued liabilities. The pension appropriation is the sum of the:

- Employer normal cost,
- Level amortization of the prior unfunded actuarial accrued liability by June 30, 2012  
\$ 7,785,713 over 4 years
- Level amortization of the Early Retirement Incentive by June 30, 2019  
\$ 97,219 over 11 years
- Interest adjustment for payments deposited at the beginning of the fiscal year.

The pension appropriation is shown in Table VII.

**Table VII**

	<u>January 1, 2006</u>	<u>January 1, 2008</u>
Normal cost	\$1,097,737	\$1,113,435
Amortization payment of the unfunded accrued liability	2,125,874	2,176,545
Amortization payment of 1992 ERI liability	<u>12,609</u>	<u>12,609</u>
Total cost	\$3,236,220	\$3,302,589
% of Pay	18.8%	17.7%
Fiscal 2009 cost	\$3,433,449	\$3,433,449
Fiscal 2010 cost	\$3,461,766	\$3,457,781



### **Appropriation Forecast**

The following exhibit forecasts employer and employee contributions over the next 32 years under the adopted funding schedule.

Note that the forecast is based upon an "open group" method. This method assumes that sufficient employees will be hired each year to keep the number constant. The total payroll of the system is expected to increase 4.5% per year. The employee contribution rate is expected to increase to 10.5% by 2028 as members contributing base percentages 5%, 7%, and 8% are replaced by new members, whose base contribution is 9%. Payments are assumed to be made at the beginning of the year.

The employer total cost is expected to decrease during the next 4 years until a large portion of the unfunded liabilities are completely paid off, at which time only the normal cost and ERI amortization will remain. During the following 7 years, the employer total cost is also expected to increase until the unfunded liabilities are completely paid off, at which time only the normal cost will remain. The total cost represents 17.7% of payroll, decreasing to 4.9% by the time the unfunded liabilities are fully paid off, leaving only a normal cost of 3.7% in 2028. The decrease in the cost as a percentage of payroll is a result of the increase in member deductions.



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**Appropriation Forecast**

Fiscal Year Ending	Employee Payroll*	Employee Contribution	Employer Normal Cost with Interest	Amortization Payments with Interest	Employer Total Cost with Interest	Employer Total Cost % of Payroll	Funded Ratio %**
2009	\$18,680,825	\$1,507,688	\$1,157,116	\$2,276,333	\$3,433,449	18.4	92.0
2010	\$19,521,462	\$1,600,493	\$1,183,248	\$2,274,533	\$3,457,781	17.7	94.0
2011	\$20,399,928	\$1,698,597	\$1,209,389	\$2,274,533	\$3,483,922	17.1	96.0
2012	\$21,317,925	\$1,802,290	\$1,235,486	\$2,274,533	\$3,510,019	16.5	98.0
2013	\$22,277,231	\$1,911,875	\$1,261,483	\$13,104	\$1,274,587	5.7	99.9
2014	\$23,279,707	\$2,027,673	\$1,287,318	\$13,104	\$1,300,422	5.6	99.9
2015	\$24,327,293	\$2,150,022	\$1,312,924	\$13,104	\$1,326,028	5.5	100.0
2016	\$25,422,022	\$2,279,276	\$1,338,228	\$13,104	\$1,351,332	5.3	100.0
2017	\$26,566,013	\$2,415,809	\$1,363,150	\$13,104	\$1,376,254	5.2	100.0
2018	\$27,761,483	\$2,560,015	\$1,387,605	\$13,104	\$1,400,709	5.0	100.0
2019	\$29,010,750	\$2,712,307	\$1,411,501	\$13,104	\$1,424,605	4.9	100.0
2020	\$30,316,234	\$2,873,121	\$1,434,737	\$0	\$1,434,737	4.7	100.0
2021	\$31,680,464	\$3,042,916	\$1,457,207	\$0	\$1,457,207	4.6	100.0
2022	\$33,106,085	\$3,222,175	\$1,478,793	\$0	\$1,478,793	4.5	100.0
2023	\$34,595,859	\$3,411,405	\$1,499,371	\$0	\$1,499,371	4.3	100.0
2024	\$36,152,673	\$3,611,140	\$1,518,807	\$0	\$1,518,807	4.2	100.0
2025	\$37,779,543	\$3,821,944	\$1,536,956	\$0	\$1,536,956	4.1	100.0
2026	\$39,479,622	\$4,044,408	\$1,553,663	\$0	\$1,553,663	3.9	100.0
2027	\$41,256,205	\$4,279,154	\$1,568,761	\$0	\$1,568,761	3.8	100.0
2028	\$43,112,735	\$4,526,837	\$1,582,071	\$0	\$1,582,071	3.7	100.0
2029	\$45,052,808	\$4,730,545	\$1,653,264	\$0	\$1,653,264	3.7	100.0
2030	\$47,080,184	\$4,943,419	\$1,727,661	\$0	\$1,727,661	3.7	100.0
2031	\$49,198,792	\$5,165,873	\$1,805,406	\$0	\$1,805,406	3.7	100.0
2032	\$51,412,738	\$5,398,337	\$1,886,649	\$0	\$1,886,649	3.7	100.0
2033	\$53,726,311	\$5,641,263	\$1,971,548	\$0	\$1,971,548	3.7	100.0
2034	\$56,143,995	\$5,895,119	\$2,060,268	\$0	\$2,060,268	3.7	100.0
2035	\$58,670,475	\$6,160,400	\$2,152,980	\$0	\$2,152,980	3.7	100.0
2036	\$61,310,646	\$6,437,618	\$2,249,864	\$0	\$2,249,864	3.7	100.0
2037	\$64,069,625	\$6,727,311	\$2,351,108	\$0	\$2,351,108	3.7	100.0
2038	\$66,952,759	\$7,030,040	\$2,456,908	\$0	\$2,456,908	3.7	100.0
2039	\$69,965,633	\$7,346,391	\$2,567,469	\$0	\$2,567,469	3.7	100.0
2040	\$73,114,086	\$7,676,979	\$2,683,005	\$0	\$2,683,005	3.7	100.0

\* Calendar basis

\*\* Beginning of Fiscal Year



**GASB Statements No. 25 and No. 27**

Effective for periods beginning after June 15, 1997, the Governmental Accounting Standards Board (GASB) requires the disclosure of pension related liabilities for public employer financial statements in accordance with Statements 25 and 27. These statements, which replace GASB Statement No. 5, must be adhered to by any public employee retirement system that follows Generally Accepted Accounting Principles (GAAP).

These disclosures are intended to establish a reporting framework that distinguishes between:

- current financial information about plan assets and financial activities,
- actuarially determined information from a long-term perspective,
- the funded status of the plan, and
- progress being made in accumulating sufficient assets to pay benefits when due.

Footnote disclosures required by GASB Statement No. 25 and 27 include a description of the plan, a summary of significant accounting policies, and information about contributions, legally required reserves, and investment concentrations. As a result of the oversight of the Public Employees Retirement Administration Commission (PERAC) and the conversion of unpaid contributions to pension related debt, the Net Pension Obligation (NPO) as required by Statement No. 27 will effectively always be equal to \$0. The required disclosure information is shown in Table VIII.

**Table VIII**

	<u>January 1, 2006</u>	<u>January 1, 2008</u>
(1) Actuarial Accrued Liability	\$89,323,471	\$98,591,648
(2) Actuarial Value of Assets	<u>70,287,535</u>	<u>90,708,716</u>
(3) Unfunded Actuarial Accrued Liability	19,035,936	7,882,932
(4) Funded Ratio (2)/(1)	78.7%	92.0%
(5) Covered Payroll	\$17,182,174	\$18,680,825
(6) UAAL as a percentage of payroll: (3)/(5)	110.8%	42.2%
(7) Annual Required Contribution (ARC)	\$3,251,144	\$3,433,449
(8) Net Pension Obligation	\$0	\$0



**PERAC Annual Statement**  
**APPENDIX PAGE 3**  
**ACTUARIAL VALUATION AND ASSUMPTIONS**

The most recent actuarial valuation of the System was prepared by Buck Consultants as of January 1, 2008.

The normal cost for employees on that date was:	\$1,507,688	8.1% of pay
The normal cost for the employer was:	988,435	5.3% of pay

The actuarial liability for active members was:	\$47,111,703
The actuarial liability for retired and inactive members was:	51,479,945
Total actuarial accrued liability:	98,591,648
System assets as of that date:	90,708,716
Unfunded actuarial accrued liability:	\$7,882,932

The ratio of system's assets to total actuarial liability was	92.0%
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The principal actuarial assumptions used in the valuation are as follows:

Investment Return:	8.0%
Rate of Salary Increase:	5.0%

**SCHEDULE OF FUNDING PROGRESS**

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability	Funded Ratio	Covered Payroll	UAAL as a percent of Covered Payroll
	(a)	(b)	(b-a)	(a/b)	(c)	(b-a)/c
01/01/08	\$90,708,716	\$98,591,648	\$7,882,932	92.0%	\$18,680,825	42.2%
01/01/06	70,287,535	89,323,471	19,035,936	78.7%	17,182,174	110.8%
01/01/04	61,223,000	81,608,000	20,385,000	75.0%	14,859,000	137.0%
01/01/03	54,144,000	77,109,000	22,964,000	70.0%	14,696,000	156.0%
01/01/01	57,355,000	67,959,000	10,603,000	84.0%	13,273,000	80.0%

Attach Copy of Current Approved Funding Schedule



## **EXHIBITS**



## Age/Service Distribution with Salary as of January 1, 2008

Attained Age	Average Salary <5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
< 20	1 12,182	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	1 12,182
20-24	8 14,449	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	8 14,449
25-29	29 28,732	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	29 28,732
30-34	19 41,516	13 59,409	0 0	0 0	0 0	0 0	0 0	0 0	0 0	32 48,785
35-39	10 32,456	16 57,887	6 53,632	2 56,926	0 0	0 0	0 0	0 0	0 0	34 49,600
40-44	21 24,958	12 50,572	12 53,142	6 72,980	1 73,010	0 0	0 0	0 0	0 0	52 43,838
45-49	28 27,690	16 33,453	8 57,104	12 63,075	7 50,111	2 74,265	0 0	0 0	0 0	73 41,419
50-54	12 32,306	20 35,969	12 43,052	7 47,077	18 69,065	4 72,108	1 65,170	0 0	0 0	74 47,973
55-59	19 21,807	11 34,561	10 33,276	5 39,867	3 40,370	7 64,994	9 79,233	0 0	0 0	64 40,871
60-64	6 25,840	3 39,506	6 41,340	6 35,133	5 52,849	2 43,877	5 68,064	7 83,542	0 0	40 50,238
65-69	5 23,180	3 46,639	4 54,102	1 58,579	0 0	2 40,762	0 0	0 0	0 0	15 40,822
70+	0 0	1 14,223	0 0	2 5,666	1 80,291	5 53,679	1 7,257	0 0	0 0	10 38,150
Total Employees	158	95	58	41	35	22	16	7	-	432
Average Salary	28,144	44,346	47,072	51,664	60,932	60,436	70,365	83,542	-	43,243



## Retiree Distribution as of January 1, 2008

Attained Age	Number of Employees			Total Payments		
	Male	Female	Total	Male	Female	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	0	1	1	0	8,116	8,116
40-44	0	0	0	0	0	0
45-49	1	0	1	17,739	0	17,739
50-54	1	4	5	2,282	58,681	60,963
55-59	13	4	17	454,003	66,027	520,030
60-64	9	5	14	393,373	62,411	455,784
65-69	24	24	48	777,267	409,287	1,186,554
70-74	22	12	34	557,691	182,730	740,421
75-79	15	27	42	349,884	293,846	643,731
80-84	18	26	44	305,215	180,676	485,892
85-89	12	12	24	153,874	92,859	246,733
90-94	3	3	6	35,014	25,588	60,602
95-99	1	1	2	1,691	4,384	6,075
Total	119	119	238	3,048,033	1,384,606	4,432,640
Average (Age/Payment)	73	75.1	74	25,614	11,635	18,625
Frequency Percent	50	50	100	68.8	31.2	100



## Disabled Retiree Distribution as of January 1, 2008

Attained Age	Number of Employees			Total Payments		
	Male	Female	Total	Male	Female	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	0	1	1	0	41,230	41,230
45-49	2	1	3	64,214	44,963	109,177
50-54	1	1	2	24,313	32,875	57,188
55-59	7	0	7	141,757	0	141,757
60-64	10	0	10	246,211	0	246,211
65-69	13	1	14	355,931	29,463	385,394
70-74	3	0	3	87,832	0	87,832
75-79	5	0	5	113,873	0	113,873
80-84	5	0	5	84,543	0	84,543
85-89	1	0	1	14,004	0	14,004
90-94	0	0	0	0	0	0
95-99	0	0	0	0	0	0
Total	47	4	51	1,132,679	148,532	1,281,210
Average (Age/Payment)	67.3	52.6	66.2	24,100	37,133	25,122
Frequency Percent	92.2	7.8	100	88.4	11.6	100



**EXHIBIT 4 - CASHFLOW FORECAST:**

The following is a 30 year forecast of benefit payments net of state reimbursable COLA payments, Contribution Income and Investment Returns.

Plan Year Ending	Benefit Payments	Employee Contributions	Employer Contributions	Investment Returns	Net change in plan assets
2008	\$6,297,673	\$1,507,688	\$3,433,449	\$7,128,703	\$5,772,167
2009	6,479,449	1,600,493	3,457,781	7,586,977	6,165,801
2010	6,745,588	1,698,597	3,483,922	8,072,325	6,509,256
2011	7,101,238	1,802,290	3,510,019	8,581,799	6,792,870
2012	7,487,173	1,911,875	1,274,587	9,024,246	4,723,535
2013	7,895,716	2,027,673	1,300,422	9,389,134	4,821,513
2014	8,085,775	2,150,022	1,326,028	9,770,621	5,160,896
2015	8,408,949	2,279,276	1,351,332	10,174,236	5,395,895
2016	8,792,315	2,415,809	1,376,254	10,594,501	5,594,249
2017	9,148,345	2,560,015	1,400,709	11,031,930	5,844,309
2018	9,520,685	2,712,307	1,424,605	11,488,961	6,105,188
2019	9,809,943	2,873,121	1,434,737	11,969,857	6,467,772
2020	10,255,686	3,042,916	1,457,207	12,474,397	6,718,834
2021	10,701,288	3,222,175	1,478,793	12,999,308	6,998,988
2022	11,055,120	3,411,405	1,499,371	13,550,526	7,406,182
2023	11,494,816	3,611,140	1,518,807	14,131,262	7,766,393
2024	11,848,520	3,821,944	1,536,956	14,744,517	8,254,897
2025	12,164,701	4,044,408	1,553,663	15,398,671	8,832,041
2026	12,513,165	4,279,154	1,568,761	16,098,097	9,432,847
2027	12,792,878	4,526,837	1,582,071	16,848,672	10,164,702
2028	13,002,825	4,730,545	1,653,264	17,658,682	11,039,666
2029	13,145,214	4,943,419	1,727,661	18,541,566	12,067,432
2030	13,310,870	5,165,873	1,805,406	19,505,998	13,166,407
2031	13,542,848	5,398,337	1,886,649	20,555,995	14,298,133
2032	13,606,677	5,641,263	1,971,548	21,703,387	15,709,521
2033	13,813,712	5,895,119	2,060,268	22,958,343	17,100,018
2034	13,780,946	6,160,400	2,152,980	24,334,232	18,866,666
2035	13,837,040	6,437,618	2,249,864	25,848,263	20,698,705
2036	13,708,912	6,727,311	2,351,108	27,516,395	22,885,902
2037	14,169,033	7,030,040	2,456,908	29,336,750	24,654,665

amounts in thousands



## EXHIBIT 5 – SUMMARY OF PLAN PROVISIONS:

This summary is prepared in accordance with Chapter 32 as of January 1, 2008, and does not take into account any subsequent changes.

### 1. Administration

Each of the 107 contributory retirement systems for public employees for the Commonwealth of Massachusetts are guided by the applicable provisions of Chapter 32 of the Massachusetts General Laws and other applicable statutes. Although these boards operate semi-independently, there is a uniform set of rules governing benefits, eligibility, contributions, financing, and accounting.

### 2. Participation

Participation is mandatory for all full-time employees whose employment commences prior to age 65. Eligibility with respect to part-time, professional, temporary, or intermittent employment is governed by the local board. Membership is optional for certain elected officials, State officials appointed by the Governor, and certain hospital interns.

There are four classes of membership as follows:

- (i) Group 1: Most general employees in State and local government
- (ii) Group 2: Certain specified hazardous duty positions
- (iii) Group 3: State police officers and inspectors
- (iv) Group 4: Local police officers, firefighters, and designated employees of the municipal light department.

For members in more than one group, participation will be proportional.



### 3. **Salary**

Salary is defined as gross regular compensation. Salary does not include bonuses, overtime, severance pay, unused sick leave credit, or other similar compensation.

### 4. **Member Contributions**

Member contributions vary depending upon date hired as follows:

<b><u>Date of Hire</u></b>	<b><u>Member Contribution Rate</u></b>
Prior to 1975	5.0% of Salary
1975 to 1983	7.0% of Salary
1984 to 1996	8.0% of Salary
1996 and Later plus	9.0% of Salary
1979 and Later	2.0% of Salary in excess of \$30,000

### 5. **Average Salary**

Average salary is used to determine a participant's benefit. It is defined as the average salary during the three consecutive-year period that produces the highest average. (Alternatively, if a greater amount results, it is the average rate of salary earned during the period or periods, whether or not consecutive, that constitutes the last three years preceding retirement.)

### 6. **Creditable Service**

In general, creditable service is awarded during the period in which a member contributes to the retirement system.



## **7. Service Retirement**

### **a. Eligibility:**

For an employee to be eligible for service retirement (also referred to as superannuation), one of the following conditions must be met:

- (i) completion of 20 years of service
- (ii) for an employee hired prior to January 1, 1978, attainment of age 55 as an active member
- (iii) for an employee hired on or after January 1, 1978, attainment of age 55 as an active member and completion of ten years of service



b. Benefit Amount:

The retirement allowance is determined as a product of the participant's Benefit Rate times Average Salary times Creditable Service, where Benefit Rate is determined from the following table:

<u>Age at Retirement</u>	<u>Percentage of Average Salary</u>		
	<u>Group 1</u>	<u>Group 2</u>	<u>Group 4</u>
65 or Over	.025	.025	.025
64	.024	.025	.025
63	.023	.025	.025
62	.022	.025	.025
61	.021	.025	.025
60	.020	.025	.025
59	.019	.024	.025
58	.018	.023	.025
57	.017	.022	.025
56	.016	.021	.025
55	.015	.020	.025
54	.014	.014	.024
53	.013	.013	.023
52	.012	.012	.022
51	.011	.011	.021
50	.010	.010	.020
49	.009	.009	.019
48	.008	.008	.018
47	.007	.007	.017
46	.006	.006	.016
45	.005	.005	.015
44	.004	.004	.004
43	.003	.003	.003
42	.002	.002	.002
41	.001	.001	.001



**8. Deferred Vested Retirement****a. Eligibility:**

A participant who has completed ten or more years of creditable service is eligible for a deferred vested retirement benefit. If termination is involuntary, the participant is vested after six years.

**b. Benefit Amount:**

The participant's accrued benefit is payable commencing at age 55, or may be deferred until later at the employee's option.

**c. Refund of Contributions:**

In lieu of the deferred pension benefit, a member may elect to receive a refund of their accumulated contributions. Members with ten or more years of service are entitled to 100% of the credited interest on their contributions. Members with five to ten years of service are entitled to 50% of the credited interest on their contributions. No credited interest is provided for members with less than five years of service.

**9. Accidental Disability****a. Eligibility:**

Participants are eligible for an accidental disability benefit, regardless of service or age, if they become permanently and totally incapacitated for further duty as a result of personal injury sustained while in the performance of duties.

**b. Benefit Amount:**

The accidental disability amount is 72% of annual salary plus \$450 per year for each child plus an additional annuity based upon accumulated Member Contributions with credited interest.



**10. Ordinary Disability****a. Eligibility:**

An ordinary disability occurs when a member becomes permanently and totally disabled due to sickness or injury that is not job related. In order to be eligible for an ordinary disability benefit, a member must have ten years of service (and be less than age 55).

**b. Benefit Amount:**

The ordinary disability amount is equal to the accrued retirement benefit as if the member were age 55. If the member was a veteran, the benefit is 50% of the member's final rate of Salary during the preceding 12 months, plus an annuity based upon accumulated Member Contributions plus credited interest. If the participant is over age 55, he will receive not less than the superannuation allowance to which he is entitled.

**11. Survivor Benefits****a. Occupational Death:**

The survivors of a member who dies due to an occupational injury will be entitled to a lump sum return of contributions plus a pension benefit equal to 72% of the participant's annual Salary.

**b. Non-Occupational Death:**

Upon the death of a member other than due to an occupational injury, the designated beneficiary will be entitled to a retirement benefit as if Option C had been elected with a minimum of \$250 per month to the surviving spouse, plus \$120 for the first child, plus \$90 for each additional child. If no beneficiary is designated and if the employee worked two years, and is married at least one year, the spouse may elect benefits. If there is no designated beneficiary or surviving spouse, then member contributions are returned. If there are dependent children but no surviving spouse, they may elect minimum survivor benefits of \$250 per month plus \$120 for the first child and \$90 for each additional child.



c. Refund of Contributions:

Upon the death of a member not entitled to survivor benefits, the beneficiary is entitled to a refund of all member contributions with interest.

**12. Cost-of-Living Increases**

In accordance with the adoption of Chapter 17 of the Acts of 1997, the granting of a cost-of-living adjustment will be determined by an annual vote by the Retirement Board. The amount of increase will be based upon the Consumer Price Index, limited to a maximum of 3.0%, beginning on July 1. All retirees, disabled retirees, and beneficiaries who have been receiving benefits payments for at least one year as of July 1 are eligible for the adjustment. The maximum amount of pension benefit subject to a COLA is \$12,000. All COLAs granted to members after 1981 and prior to July 1, 1998 are deemed to be an obligation of the State and are not the liability of the Retirement System.

**13. Postretirement Death Benefits**

Any benefits following the death of a member after retirement are based upon the form of benefit the participant elected at the time of retirement. There are three available forms as follows:

- (i) Option A – Life annuity
- (ii) Option B – Life annuity with death benefit equal to excess of member contributions plus credited interest to retirement over annuity benefit paid to member
- (iii) Option C – Life annuity with 66-2/3% of benefit continued after death of member to designated joint annuitant



## **EXHIBIT 6 – ACTUARIAL METHODS AND ASSUMPTIONS:**

The actuarial cost method, factors, and assumptions used in determining cost estimates are presented below.

### **1. Member Data**

The member data used in the determination of cost estimates consist of pertinent information with respect to the active, inactive, retired, and disabled members of the employer as supplied by the employer to the actuary.

### **2. Valuation Date**

January 1, 2008.

### **3. Actuarial Cost Method**

The costs of the Plan have been determined in accordance with the individual entry age normal actuarial cost method.

### **4. Rate of Investment Return**

It is assumed that the assets of the fund will accumulate at a compound annual rate of 8.0% per annum.

### **5. Salary Scale**

It is assumed that salaries including longevity will increase at a rate of 5% per year.

### **6. Cost-of-Living Increases**

Cost-of-living increases have been assumed to be 3.0% of the lesser of the pension amount and \$12,000 per year.



7. **Value of Investments**

Assets held by the fund are valued at market value as reported by the Public Employees' Retirement Administration Commission (PERAC). The actuarial value of assets is determined using a four-year smoothing of unrealized gains and losses.

8. **Annual Rate of Withdrawal Prior to Retirement**

Based on an analysis of experience, the assumed annual rates of withdrawal may best be illustrated by the following rates at the following ages:

<b><u>Attained Age</u></b>	<b><u>General Employees</u></b>	<b><u>Police and Fire Employees</u></b>
20	0.3751	0.0315
30	0.1735	0.0248
40	0.0721	0.0084
50	0.0457	0.0000
60	0.0000	0.0000

9. **Annual Rate of Mortality**

It is assumed that both pre-retirement and post retirement mortality are represented by the RP-2000 Mortality Table for males and females. Mortality for disabled members is represented by the RP-2000 Mortality Table set forward two years for all disabled members.



**10. Service Retirement**

Based on an analysis of experience, the assumed annual retirement rates are illustrated at the following ages:

<b><u>Age</u></b>	<b><u>General Employees</u></b>	<b><u>Police and Fire Employees</u></b>
50	0.0000	0.02000
51	0.0000	0.02000
52	0.0000	0.02000
53	0.0000	0.02000
54	0.0000	0.02000
55	0.1000	0.05000
56	0.0300	0.05000
57	0.0300	0.05000
58	0.0300	0.05000
59	0.0500	0.05000
60	0.0500	0.10000
61	0.1000	0.10000
62	0.1000	0.20000
63	0.1000	0.20000
64	0.1000	0.20000
65	0.1000	1.00000
66	1.0000	1.00000
67	1.0000	1.00000
68	1.0000	1.00000
69	1.0000	1.00000
70	1.0000	1.00000



**11. Annual Rate of Disability Prior to Retirement**

Based on an analysis of experience, the assumed annual rates of disability may best be illustrated by the following probabilities at the following ages:

<b><u>Attained Age</u></b>	<b><u>General Employees</u></b>	<b><u>Police and Fire Employees</u></b>
20	0.0001	0.0010
30	0.0003	0.0030
40	0.0010	0.0030
50	0.0019	0.0125
60	0.0028	0.0085

In addition, it is assumed for the general employees that 45% of all disabilities are ordinary (55% are service connected). For police and fire employees, 10% of all disabilities are assumed to be ordinary (90% are service connected).

**12. Family Composition**

It is assumed that 80% of all members will be survived by a spouse and that females (males) are three years younger (older) than members.

**13. Administrative Expenses**

The normal cost is increased by an amount equal to the anticipated administrative expenses for the upcoming fiscal year. The amount for fiscal year 2008 is \$125,000 and is anticipated to increase at 4.5% per year.



## EXHIBIT 7 – GLOSSARY OF TERMS:

This glossary summarizes the technical terms contained in this report.

### 1. **Actuarial Accrued Liability**

That portion of the Actuarial Present Value of plan benefits that is not provided for by future employer Normal Costs or employee contributions.

### 2. **Actuarial Assumptions**

Assumptions as to the occurrence of future events affecting the Retirement System such as:

- Rates of investment returns
- Increases in a member's salary
- Inflation
- The probability of mortality, turnover, disablement
- Retirement at each age and other relevant items

### 3. **Actuarial Cost Method**

A procedure for allocating the Actuarial Present Value of pension plan benefits between Normal Cost and Actuarial Accrued Liability.

### 4. **Actuarial Present Value**

The single sum amount required at the valuation date that is required to provide for anticipated future events based upon the terms of the plan and the Actuarial Assumptions.

### 5. **Forecast**

A projection of future benefit payments or contribution requirements based upon the terms of the plan, the current asset amounts, the Actuarial Assumptions, and additional assumptions as to the replacement of terminating employees with new employees.



**6. Normal Cost**

That portion of the Actuarial Present Value of future benefits that is assigned to the current year.

**7. Unfunded Actuarial Accrued Liability**

That portion of the Actuarial Accrued Liability that is not provided for by current actuarial value of assets.

**8. Valuation Method**

The method used to divide the cost of future benefits among the Actuarial Accrued Liability, the current year's Normal Costs, and future years' Normal Costs. The resulting current funding requirement is then determined as the current year's Normal Cost plus the payment necessary to amortize the Unfunded Actuarial Liability.

**9. Vested Liability**

That portion of the Actuarial Present Value of Accrued Benefits that a member would be entitled to if the member terminated employment with the employer as of the valuation date.



## **CERTIFICATION:**

This report fairly represents the actuarial position of the Town of Dedham Retirement System contributing as of January 1, 2008, in accordance with generally accepted actuarial principles applied consistently with the preceding valuation. In our opinion, the actuarial assumptions used to compute actuarial accrued liability and normal cost are reasonably related to plan experience and to reasonable expectations, and represents our best estimate of anticipated plan experience.

Buck Consultants, LLC

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Daniel W. Sherman, ASA, MAAA  
Enrolled Actuary No. 08-4086

June 2008



## **BREAKOUTS**



## Breakouts - Payroll Based

	<u>Total</u>	<u>All Others</u>	<u>Housing</u>
(1) Participants			
(a) Actives	432	417	15
(b) Inactives	123	116	7
(c) Retirees	238	228	10
(d) Disabled Retirees	<u>51</u>	<u>51</u>	<u>0</u>
(e) Total	844	812	32
(2) Payroll of Active Participants	\$18,680,825	\$17,989,009	\$691,816
(3) Percentage of Payroll	100.00%	96.30%	3.70%
(4) Normal Cost			
(a) ERI	12,609	0	12,609
(b) Remaining Amortizations	2,176,545	2,095,940	80,605
(c) Employer Normal Cost	2,496,123	2,403,683	92,440
(d) Administrative Expenses	<u>125,000</u>	<u>120,371</u>	<u>4,629</u>
(e) Total	4,810,278	4,619,995	190,283
(5) Fiscal 2009 Cost	\$3,433,449	3,291,740	141,709
(6) Fiscal 2010 Cost	\$3,457,781	3,321,000	136,781
(7) Percentage of Total Cost	100.00%	96.04%	3.96%

\*Appropriations are allocated based on the ratio of the division payroll to the total payroll.



## Breakouts - Actuarial Based

	<u>Total</u>	<u>All Others</u>	<u>Housing</u>
(1) Participants			
(a) Actives	432	417	15
(b) Inactives	123	116	7
(c) Retirees	238	228	10
(d) Disabled Retirees	<u>51</u>	<u>51</u>	<u>0</u>
(e) Total	844	812	32
(2) Payroll of Active Participants	\$18,680,825	\$17,989,009	\$691,816
(3) Normal Cost			
(a) Total Normal Cost	2,496,123	2,433,060	63,063
(b) Expected Employee Contributions	1,507,688	1,449,552	58,136
(c) Administrative Expenses	<u>125,000</u>	<u>120,261</u>	<u>4,739</u>
(d) Net Employer Normal Cost (a) - (b) + (c)	1,113,435	1,103,769	9,666
(4) Actuarial Accrued Liability	98,591,648	95,890,898	2,700,750
(5) Assets*	<u>90,708,716</u>	<u>88,223,905</u>	<u>2,484,811</u>
(6) Unfunded Actuarial Accrued Liability (4) - (5)	7,882,932	7,666,993	215,939
(7) Amortizations*	2,189,155	2,116,923	72,232
(8) Total Required Employer Contributions (3d) + (7)	3,302,590	3,220,692	81,898
(9) Fiscal 2009 Cost	\$3,433,449	\$3,291,740	\$141,709
Percentage of Total Cost	100.00%	95.87%	4.13%
(10) Fiscal 2010 Cost	\$3,457,781	\$3,372,034	\$85,746
Percentage of Total Cost	100.00%	97.52%	2.48%

\* Allocation is based on the ratio of the Unfunded Actuarial Accrued Liability